



ASSOCIATION DES PROFESSIONNELS DE LA RÉASSURANCE EN FRANCE

## NBCR terrorism issues

**OECD**

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## NBCR- From WTC to NBCR

Terrorism has dramatically changed over the last 10 years:

### • WTC

- Major post cold war geo- political event
- Change of paradigm in terrorism (diplomacy, security, alliances, wars...)
- Review of all insurance covers and set up of terrorism pools

### • Mid 2000

- Irak/ Afghanistan wars, Development of attacks (Middle East, Europe...),
- Hyper -terrorism threats: Nuclear, Biological, Chemical and Radiological
- Tentatives on nuclear plants (Sydney, 2005)

### • 2010 - 2012

- Focus on Nuclear terrorism and 'Rogue States'
- Nuclear terrorism set by the US as the worst threat to the world (Washington, 2010) . France, UK and US agreement (Seoul, 2012)



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## NBCR – Current situation

The current political situation is very uncertain with numerous areas of tensions and the nuclear landscape has changed the development of nuclear military states:

- **Geo-politics**

- Globalization of terrorism
- Tensions and uprisings in the Middle east
- Fights in Irak, Afghanistan, Pakistan

- **Nuclear**

- Failure of the nuclear military containment policy
- Conjunction of civil (terrorism, sabotage, accident...) and military (proliferation, blackmail ...) threats
- New instruments (cyber war on Iran...)

## NBCR- NR terrorism

There are basically 4 main threats of Nuclear and Radiological terrorism:

- **Dirty Bomb**

- Specific device with mix of explosives and radio- active materials

- **Attack on a nuclear plant**

- Attack (all types, inc. cyber) resulting in massive radio-active emission
- Similar to major nuclear accident

- **Set up of a nuclear bomb**

- Manufacturing of a nuclear device

- **Use of a nuclear weapon**

- Theft and use of a nuclear weapon



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## NBCR - Scenarios

Here are 3 public scenarios with potential economic damages estimates, not including a related financial crash, showing numbers in the range of 10% to 30% of GNP for a mid- size country:

- **Attack on a nuclear plant (US)**

- Conventional attack: around 200 billion dollars (*GAO*)

- **Dirty bomb (Paris)**

- Bomb of 5kg TNT and 1,85 PBq (Césium 137) on the Paris area: 100 to 300 billion euros (*Spiez Laboratory, Switzerland*)

- **Nuclear device (US)**

- New York : around 800 billion US (*American Academy of Actuaries*)
- California: above 1000 billion US (*Rand*)



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## NBCR - Insurance issues

The type and targets of attacks have changed over the last years:

### • Targets

- Shifted more to people rather than industrial plants or landmark buildings
- Most dangerous type is to use arms of mass destruction (NBCR)

### • Insurance needs

- Lack of sensitivity from insurers and reliance on the State
- Life and Health insurers not prepared and protected for extreme scenarios
- Current pools and schemes focus on Property and not on Life and Health
- OECD insurance and reinsurance schemes to be reviewed in that context



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## France- Nuclear specifics

France is the most nuclearized country in the world:

- **Research and Development**

- 1900-1940: Fundamental research on radio-activity, first patents on nuclear fission
- 1945-1960: CEA creation, experimental plants, atomic bomb testing
- 1960-1980: development of civil (nuclear power plants, waste treatment) and military (uranium enrichment and nuclear weapons)

- **Current Industry position**

- EDF: Largest nuclear electricity producer in Europe (20% of world output) , share (75% of all) and exporter (worldwide)
- AREVA: Largest world waste treatment industry
- EPR (European Pressurized Reactor- EDF, AREVA, Siemens): new and safer third generation pressurized water reactor (China, Finland, France)





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## France- Nuclear insurance covers

Insurance covers followed the needs of the industry and the inclusion of terrorism:

### • Nuclear plants

- 1957: Nuclear insurance pool ( Assuratome)
- 1960: OECD Paris Convention on Nuclear liability
  - Overseen by NEA (Nuclear Energy Agency)
  - Strict liability channeled to Operators
  - Extended protocol (2004) to a liability limit of 700 million euros

### • GAREAT

- 2002: Creation of the first post- WTC terrorism reinsurance pool with unlimited cover given by CCR on behalf of the State
- 2004: Inclusion of EDF nuclear plants
- 2006: Inclusion of NBCR covers, by a new Law (propertybinding cover)
- 2012: Largest NBCR reinsurance capacity in the world , State unlimited cover for 5 years given above by CCR (including NBCR)

## France- Outlook

France is in a specific situation, with major insurance exposure (binding NBCR covers, nuclear plants..) , being politically active and short of financing for a major event:

- **Concept of a global reinsurance scheme**

- Coverage of all insured risks (like in Benelux)
- Merger of all schemes (6 current types for different risks)
- GAREAT extension to all classes of business
- State threshold at around 0,5% GNP

Nuclear terrorism is beyond a country policy or protection, but in fact a regional issue:

- **Europe protection**

- Major risk of cross-border damages with NBCR attack
- Potential NBCR scenarios far above current financing means of countries
- European protection (type FESF) needed for member States, incepting at around 5% GNP

## Trends – Europe perspective

The view on terrorism is very different in the US (strategic security issue) and in Europe (hidden risk):

- **From shock to denial**

- The Madrid (2004) and London (2005) attacks have been a shock to Europe
- The Lisbon treaty (2006) has included a solidarity clause in case of terrorism
- Since then, nothing significant has been done (studies, exposures, projects...)

- **Nuclear regulation**

- Current nuclear plants are not designed for new terrorist attacks
- ENSREG (European Nuclear Safety Agency) post Fukushima stress testing has not included terrorism or sabotage

- **Insurance regulation**

- Solvency 2 does not include hyper-terrorism testing
- Focus on financial crisis and competition, not on protection and new schemes



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## Trends- Nuclear safety

The 2011 Fukushima nuclear accident (not yet over) consequences are still to come:

- **Nuclear dilemma**

- Several OECD countries, in particular 3 strongest industrial countries (Germany, Japan, Switzerland) have decided to shelve their nuclear plants
- Future search for maximal security (4th reactors generation)
- AIEA (International Nuclear Agency) action plan on safety

- **Potential consequences**

- Worries about nuclear safety with 3 major accidents (Ines nuclear scale) in 30 years: Three miles Island-5 (1979), Tchernobyl-7 (1986), Fukushima-7 (2011)
- No reduction of risk on potential terrorism as long delay to stop the plants
- More radio-active elements to display



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## Trends- Factors of change

There could be many factors influencing the political and insurance perspectives on terrorism, we will just mention

- **Events and threats**

- Events: a new major nuclear accident, a major attack in Europe or the US
- Threats: radio-active dissemination, nuclear devices transmitted to a terrorism network, cyber attacks and use of artificial intelligence on nuclear...

- **Potential new policy in OECD countries**

- New political sensitivity and coordinated action
- Development of country Chief Risk Officers
- Consequences of Systemic risk and Solvency insurance regulations